MI FluFocus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

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Current Influenza Activity Levels:

- **Michigan:** No activity
- **United States:** Reporting has concluded for the 2009-2010 influenza season

Updates of Interest:

- **Michigan:** Updated antiviral testing results, including one oseltamivir-resistant pandemic 2009 H1N1 specimen, are included on page 2.

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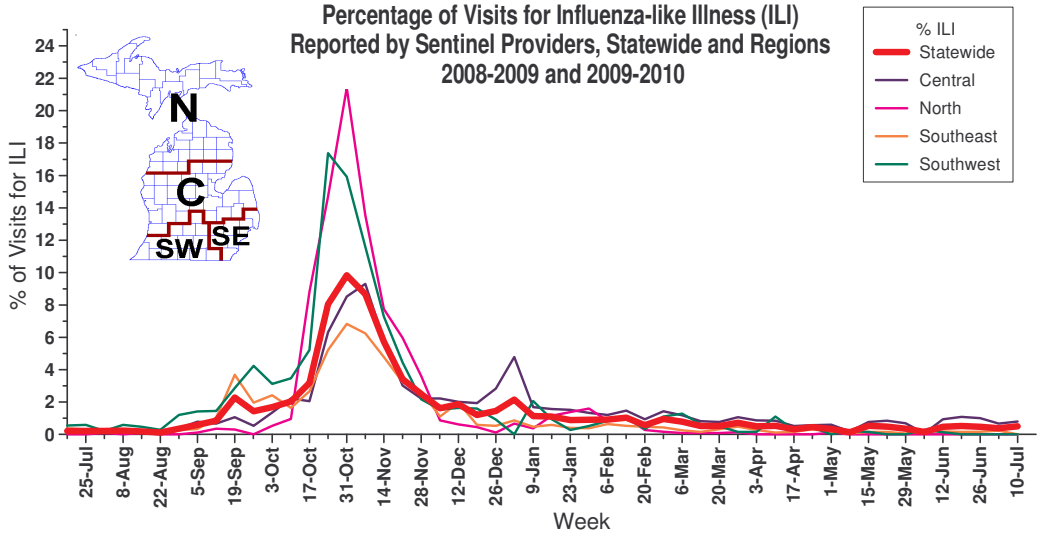
Influenza Surveillance Reports

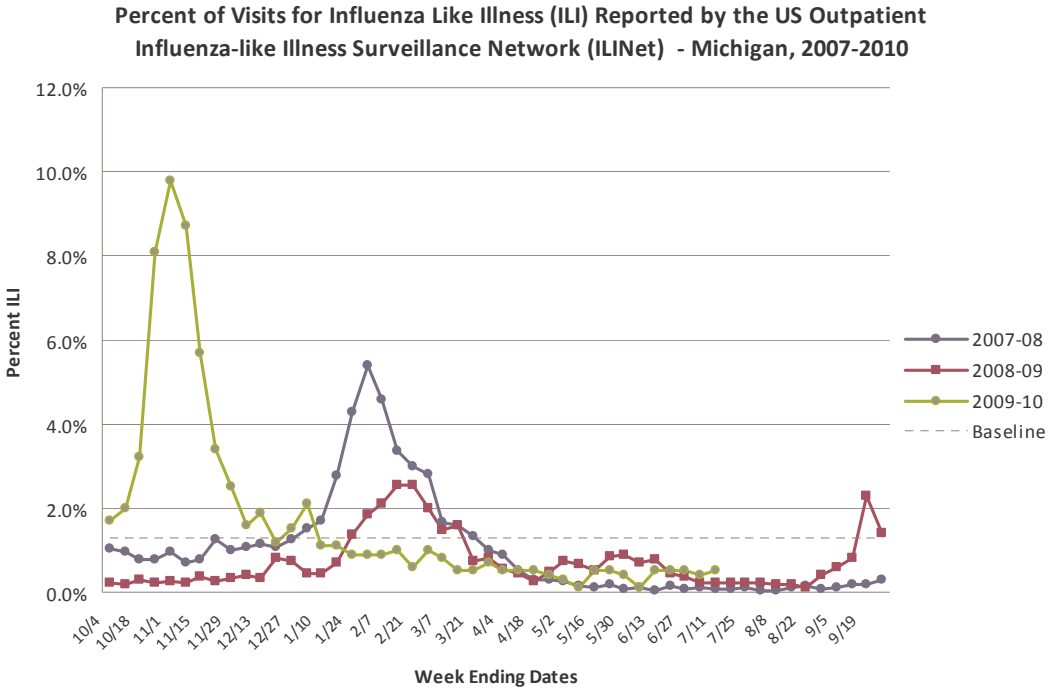
Michigan Disease Surveillance System: MDSS data for the week ending July 10th indicated that aggregate influenza case reports remained at baseline summer levels. Individual reports, including influenza and 2009 novel influenza cases, remained near the previous week's reported levels of little to no activity. Aggregate influenza cases are similar to levels seen during the same reporting period in 2009, while individual influenza reports are lower. The decrease in individual reports is attributable to the rapid increase of cases in 2009 due to the H1N1 pandemic; current levels are consistent with surveillance data from previous non-pandemic influenza seasons.

Emergency Department Surveillance: Emergency department visits from constitutional complaints were comparable to the previous week's levels, while respiratory complaints decreased slightly. Respiratory complaints have slowly but steadily declined since late February. Both constitutional and respiratory complaints are at similar levels compared to the same reporting period last year. In the past week, there were four constitutional alerts in the C (2), SE (1) and SW (1) Influenza Surveillance Regions and four respiratory alerts in the C(2), SE(1) and SW(1) Regions.

Over-the-Counter Product Surveillance: Over the past week, OTC sales of cough/cold aides and chest rubs remained similar to last week's levels, while children's electrolytes and thermometers experienced mid-week fluctuations but then returned to previous levels. All indicators are consistent with levels seen at this time last year, except for cough/cold aides and chest rubs, which are slightly increased.

Sentinel Provider Surveillance (as of July 15): During the week ending July 10, 2010, the proportion of visits due to influenza-like illness (ILI) slightly increased to 0.5% overall. 22 ILI visits were reported out of 4,432 office visits. 19 sentinel sites provided data for this report. Activity slightly increased in the Central surveillance region to 0.8%, and no ILI activity was reported in the remaining regions: Southeast, Southwest and North. Please note that these rates may change as additional reports are received.





As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

Laboratory Surveillance (as of July 10): During July 4-10, no influenza isolates were identified at the MDCH Bureau of Laboratories. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 610 influenza isolates:

- 2009 Influenza A (H1N1): 609
- Influenza B: 1

Seven sentinel laboratories reported for the week ending July 10, 2010. All laboratories (SE, SW, C, N) reported no influenza A or B positive test results, with very few specimens being tested. The SW Region reported one positive parainfluenza result, and the SE and N Regions each noted one RSV positive.

Michigan Influenza Antigenic Characterization (as of July 15): One 2009 H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010-11 Northern Hemisphere vaccine.

Michigan Influenza Antiviral Resistance Data (as of July 15): MDCH has received 33 results for antiviral resistance testing for the 2009-2010 season. All of the specimens tested were pandemic 2009 influenza A (H1N1) viruses. Of these results, one virus did show resistance to oseltamivir. This virus was obtained in November 2009 from a 3 year old child with an underlying immunosuppressive condition from the SE Region and had a multiple courses of oseltamivir prior to specimen collection. Further epidemiologic investigation is ongoing. The 33 specimens tested were distributed as follows: 8 Southeast, 8 Southwest, 9 Central, 2 North, 6 unknown.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at http://www.cdc.gov/H1N1flu/recommendations.htm.

Influenza-Associated Pediatric Mortality (as of July 15): Five 2009 H1N1 influenza-associated pediatric mortalities (SE(3), SW, N) have been reported to MDCH for the 2009-2010 influenza season.

***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of July 15): Seven congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and three outbreaks associated with positive influenza A tests (2C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 2 long term care facilities. Human metapneumovirus was confirmed in one outbreak in a long term care facility (SW) in February. Adenovirus was confirmed from one outbreak in an elementary school (SW) in May.

During fall 2009, 567 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 55, Region 2N - 4, Region 2S – 8, Region 3 - 54, Region 5 - 153, Region 6 - 100, Region 7 - 109, Region 8 - 84) were reported.

National: To access previous Center for Disease Control and Prevention weekly surveillance reports, visit http://www.cdc.gov/flu/weekly/fluactivity.htm.

International (WHO, July 9): PANDEMIC (H1N1) 2009: During weeks 22-23, pandemic influenza A (H1N1) 2009 virus activity in general remained low. Outbreaks of pandemic influenza A (H1N1) 2009 were reported by Chile, Colombia, Cuba, India and Peru. Sporadic pandemic influenza A (H1N1) 2009 activity was reported in Australia, Brazil, Cameroon, Cambodia, Canada, Chile, China, China Hong Kong Special Administrative Region, Ghana, Guatemala, Japan, Mexico, Panama, New Zealand, Russian Federation, Singapore, Thailand, United Republic of Tanzania and United States of America.

SEASONAL INFLUENZA: With regard to seasonal influenza activity, regional outbreaks of influenza B were reported in China and increasing B activity was reported by Bolivia (Plurinational State of). Increasing H3 activity was reported by a number of countries including Nicaragua, Panama, Singapore and South Africa. Sporadic seasonal influenza activity was observed in Argentina (B), Australia (B), Brazil (H3,B), Cameroon (B), Canada (B), Chile (H3,B), China (H1,H3), China Hong Kong Special Administrative Region (H3,B), Colombia (B), Democratic Republic of Congo (B), El Salvador (B), Ghana (H3), India (B), Indonesia (B), Iran (Islamic Republic of) (B), Japan (B), Kenya (H3), Madagascar (H3), Nicaragua (B), Norway (B), Republic of Korea (B), Russian Federation (H1,H3,B), Senegal (B), Singapore (B), Slovenia (B), South Africa (B), Sri Lanka (H1,B), Thailand (H3), United Republic of Tanzania (H3) and United States of America (B).

Afghanistan, Algeria, Angola, Austria, Azerbaijan, Belgium, Bulgaria, Denmark, Dominica, Estonia, Ethiopia, Georgia, Honduras, Hungary, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Mongolia, Netherlands, Oman, Poland, Portugal, Republic of Moldova, Romania, Rwanda, Serbia, Slovakia, Spain, Turkey, Tunisia, Ukraine, United Kingdom, Uzbekistan and Zambia reported no influenza activity.

Weekly reporting of influenza activity to the CDC has concluded for the 2009-2010 season.

For additional flu vaccination and education information, the MDCH *FluBytes* newsletter is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Novel Influenza Activity and Other News

WHO Pandemic Phase: Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

International, Human (The National Post, July 12): Surgeons transplanting two new lungs in a life-saving operation on an Edmonton man faced an unprecedented complication last fall when they discovered the organs they had just transferred were infected with H1N1 flu virus, a new report has revealed.

Michael Cunningham appears to be the first double-lung transplant patient in the world to have contracted the pandemic virus as he underwent the complex procedure, his doctors say.

Patients with underlying breathing problems face the greatest risk from the swine flu, and the infection presented a major challenge for the medical team.

Transplant patients are pumped full of drugs to actually suppress their immune systems. Designed to ease acceptance of someone else's organs, the medication made fighting a potentially deadly flu that much more dicey.

“It’s a really unique case,” said Dr. Mohammed Al-Aklabi, a University of Alberta surgeon and lead author of a paper just published on the case. “Patients who are already sick with other problems and get H1N1, they are at higher risk of dying.”

Mr. Cunningham said his reaction was “holy cow” when he learned he had the new flu.

An aggressive course of anti-viral drugs beat back the infection, and helped contribute to a full recovery. In fact, the transplant has transformed his life, he said, making him feel like “a new man.” The disease COPD had left him desperately short of breath, lacking energy to carry out the most basic chore and all but chained to an oxygen tank. Even a walk down his apartment hallway was excruciating.

Almost instantly after the transplant, the Edmonton man could breathe easily. Soon he was hiking for hours at a time. “The minute you wake, everything’s changed,” the 53-year-old said. “It’s like being new born.”

The swine flu proved to be a relatively mild virus overall as it swept the world first in the spring of 2009, then in greater numbers last fall. For a small subset of relatively young patients, however, it could cause severe pneumonia and even death. Studies have shown that among the most at risk of a severe case were sufferers of asthma and COPD, an inflammatory illness encompassing what used to be known as emphysema and chronic bronchitis.

Mr. Cunningham had complained of vague flu-like symptoms just before the transplant. Doctors considered the fact their patient might have H1N1 then decided to push forward anyway, knowing the new lungs had to be removed soon from the brain-dead donor or would be useless. “We could not wait,” Dr. Al Aklabi said. “We had to act quickly.”

As a precaution, they started him on the anti-viral drug Tamiflu; It turned out to be the right decision. The operation went well, but shortly afterward tests revealed that the new lungs were, in fact, infected with the pandemic influenza, notes the study published this month in The Journal of Heart and Lung Transplantaion. Mr. Cunningham was in the clear after three weeks on Tamiflu.

COPD causes narrowing of airways, leading to coughing and shortness of breath that worsens over time. Mr. Cunningham had end-stage lung disease and was expected to live only a month if he did not receive new organs, said Dr. Al Aklabi.

The former real estate appraiser was forced to quit his job in the Sears hardware department about two years earlier, and found most aspects of daily life an ordeal. “I was starting to get a lot of anxiety built up and panicking because of the shortness of breath,” he said. “It was all I could think about: getting the next breath and getting down the hallway or putting my pants on.”

And yet, when the call came one midnight last November that an organ match was found, he hesitated. It was “fear of the unknown,” he said. “The unknown was the surgery, and trading one problem for another didn’t really appeal to me.”

The hospital called back and this time he agreed to the operation.

His condition has only improved; he is hoping to even play hockey again this winter. “You sort of rediscover things you used to do and like to do,” Mr. Cunningham said. “It’s been a treat.”

International, Human (ICEID Conference abstract, July 13): Asymptomatic Infection of Influenza A(H1N1) 2009 Pandemic Virus among Japanese Healthcare Workers, Authors: A. Suzuki, T. Odagiri, T. Okada, K. Shimabukuro, A. Ohno, I. Khandaker, R. Sawayama, Y. Furuse, K. Kawamura, H. Oshitani;

Background: One of the limitations of the current influenza surveillance is the detection of asymptomatic cases, which play important role in disease transmission. It is difficult to detect asymptomatic cases even with sensitive molecular methods, and a retrospective serological test is the method to confirm. The asymptomatic infection among healthcare worker may the big issues in terms of infection control, but its occurrence is unknown. We conducted sero-epidemiology study to elucidate the prevalence of asymptomatic infection of influenza A(H1N1) pandemic virus in a cohort of healthcare workers in Japan.

Methods: One hundred forty healthcare workers, including 25 pediatricians, in 18 private pediatric outpatient clinics in Sendai, Japan, have been participating in the cohort study to monitor the incidence of influenza infection during pandemic. Serum was collected between 38th and 42nd epidemiological week,

the early stage of community transmission in Sendai. Hemagglutination inhibition (HI) test was used to measure the antibody against pandemic influenza. Purified hemagglutinin of A/California/07/2009 pdm was used as the antigen for HI test, and was kindly provided by National Institute for Infectious Disease in Tokyo, Japan. All participants were asked to fill the questionnaire on history of influenza-like illness from May 2009 to the day of sampling. Paired-serums of symptomatic laboratory-confirmed cases in this cohort study were used as the reference for HI titer.

Results: Among 123 participants, 33 (27%) had HI antibody titer below 1:10, 39 (32%) had 1:10, 16 (13%) had 1:20, 18 (15%) had 1:40, 11 (9%) had 1:80, 4 (3%) had 1:160, and 2 (1%) had 1:320. All laboratory confirmed cases had HI titer higher than 1:160 in convalescence phase serum. Only one case reported to have influenza-like illness after May 2009 and most of them were asymptomatic. By stratification by the job title, medical doctors had highest attack rate.

Conclusions: We were able to confirm the high prevalence of infected cases, as well as asymptomatic cases, among healthcare workers in Japan despite of the fact that most of them wearing surgical or N95 masks. Alternative approach should be taken place in healthcare facilities to protect workers from influenza infection.

International, Human (Agence France-Presse, July 14): Experts advising the World Health Organisation on whether to end the year-old swine flu pandemic alert could now meet as late as August, the agency's chief said on Wednesday.

An emergency committee of 15 scientists headed by Australian infectious diseases expert John Mackenzie was meant to reassess by mid-July whether to recommend an end to the A(H1N1) pandemic.

But WHO chief Margaret Chan told AFP said the team had decided to wait a few more weeks in order to obtain more information about the development of the flu in the southern hemisphere's winter.

"In the northern hemisphere, the situation is OK, but we have to look at the situation in the southern hemisphere," said Chan.

"The president of the committee said that we have to wait and see what is going on in Australia and New Zealand where, traditionally, the peak for influenza is in August.

"So I expect the committee to meet at the end of July or in August," added the director-general of the WHO.

The WHO declared a swine flu pandemic on June 11, 2009.

Following the committee's last meeting in June, Chan had decided to maintain a pandemic alert for swine flu, which according to WHO data has claimed some 18,311 lives worldwide.

Michigan Wild Bird Surveillance (USDA, as of July 15): For the 2010 season (April 1, 2010-March 31, 2011), highly pathogenic avian influenza H5N1 has not been recovered from 4,139 samples tested nationwide, including 15 Michigan samples (5 live bird, 2 hunter-killed birds, 8 morbidity/mortality). For more information, visit the National HPAI Early Detection Data System at http://wildlifedisease.nbii.gov/ai/.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at http://www.michigan.gov/emergingdiseases.

International Poultry and Wild Bird Surveillance (OIE): Reports of avian influenza activity, including summary graphs of avian influenza H5N1 outbreaks in poultry, can be found at the following website: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm.

For questions or to be added to the distribution list, please contact Susan Peters at PetersS1@michigan.gov

Contributors

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Table 1. H5N1 Influenza in Humans - Cases up to July 5, 2010. http://www.who.int/csr/disease/avian_influenza/country/cases_table_2010_06_08/en/index.html. Downloaded 7/6/2010. Cumulative number of lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		2010		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	1	1	10	8
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	1	1	39	26
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	39	4	19	7	109	34
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	21	19	4	3	166	137
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	7	2	119	59
Total	4	4	46	32	98	43	115	79	88	59	44	33	73	32	32	14	500	296